

Table 1. AHA 1983 Analytical Results

Drain Location	Location 1			Location 2			Location 3		
	Dissolved	Total	Recoverable	Dissolved	Total	Recoverable	Dissolved	Total	Recoverable
Sample Date	03/30/83	03/30/83	03/30/83	03/30/83	03/30/83	03/30/83	03/30/83	03/30/83	03/30/83
Flow (cfs)	*	*	*	0.01	0.01	0.01	0.03	0.03	0.03
Temp (c)	10	10	10	9	9	9	14	14	14
pH (field)**	7.6	7.6	7.6	4.5	4.5	4.5	5.2	5.2	5.2
pH (lab)**	7.5	7.5	7.5	4.4	4.4	4.4	4.9	4.9	4.9
Cond. (field)***	5450	5450	5450	5200	5200	5200	6200	6200	6200
Cond. (lab)***	3400	3400	3400	3500	3500	3500	4500	4500	4500
TSS	216	216	216	45	45	45	238	238	238
TDS	3432	3432	3432	3406	3406	3406	4672	4672	4672
Diss.Oxygen	--	--	--	--	--	--	--	--	--
Ca	585	593	--	473	483	--	531	523	--
Mg	76	77	--	66	71	--	162	159	--
Na	245	237	--	266	277	--	441	410	--
K	5.7	6.9	--	8.3	9.8	--	7.6	7.8	--
HCO ₃	262	--	--	0	--	--	5.5	--	--
CO ₃	0	--	--	0	--	--	0	--	--
SO ₄	1685	--	--	1848	--	--	4348	--	--
Cl	83	--	--	97	--	--	136	--	--
F	5.4	--	--	4.6	--	--	9.8	--	--
NO ₃	0.1	--	--	3.1	--	--	7.5	--	--
As	0.007	0.01	--	<0.005	<0.005	--	0.005	0.005	--
B	0.1	--	0.1	0.2	--	0.2	0.7	--	0.8
Cd	<0.1	--	<0.1	<0.1	--	<0.1	<0.1	--	<0.1
Cr	<0.05	--	<0.05	<0.05	--	<0.05	<0.05	--	<0.05
Cu	0.3	--	0.5	5.4	--	4.8	3.5	--	3.8
Fe	0.2	--	3.7	41	--	38	51	--	51
Hg	<.0002	--	<.0002	0.001	--	0.001	<.0002	--	<.0002
Mn	8.9	--	10	7.7	--	7.7	37	--	34
Pb	<0.1	--	<0.1	<0.1	--	<0.1	<0.1	--	<0.1
Zn	0.3	--	<0.1	0.8	--	0.5	1.0	--	0.7
C-A balance	-4.8	--	--	-1.0	--	--	21.8	--	--
SAR	2.5	--	--	3.0	--	--	4.3	--	--

*Flow not measurable due to backwater effect caused by strong wind

Note: all units in mg/l unless noted otherwise.

** pH units

*** micromhos/cm

Table 1. AHA 1983 Analytical Results (Cont'd)

Drain Location	Location 4			Location 5		
	Dissolved	Total	Recoverable	Dissolved	Total	Recoverable
Sample Date	03/30/83	03/30/83	03/30/83	03/30/83	03/30/83	03/30/83
Flow (cfs)	0.06	0.06	0.06	4.9	4.9	4.9
Temp (c)	20.5	20.5	20.5	10.5	10.5	10.5
pH (field)**	5.3	5.3	5.3	7.2	7.2	7.2
pH (lab)**	4.9	4.9	4.9	7.4	7.4	7.4
Cond. (field)***	5700	5700	5700	925	925	925
Cond. (lab)***	5100	5100	5100	640	640	640
TSS	82	82	82	2.7	2.7	2.7
TDS	5142	5142	5142	404	404	404
Diss.Oxygen	--	--	--	--	--	--
Ca	515	505	--	29	22	--
Mg	202	204	--	8.0	9.2	--
Na	550	521	--	73	73	--
K	9.3	9.3	--	4.8	4.9	--
HCO ₃	5.5	--	--	232	--	--
CO ₃	0	--	--	0	--	--
SO ₄	2826	--	--	130	--	--
Cl	165	--	--	29	--	--
F	13.2	--	--	0.9	--	--
NO ₃	0.4	--	--	<0.1	--	--
As	0.012	0.010	--	0.01	0.01	--
B	1.2	--	0.6	<0.1	--	<0.1
Cd	<0.1	--	<0.1	<0.1	--	<0.1
Cr	<0.05	--	<0.05	<0.05	--	<0.05
Cu	1.0	--	1.3	<0.1	--	<0.1
Fe	47	--	46	0.5	--	0.5
Hg	0.0015	--	0.003	<.0002	--	<.0002
Mn	36	--	36	0.2	--	0.3
Pb	0.5	--	<0.1	<0.1	--	<0.1
Zn	0.9	--	0.3	0.5	--	<0.1
C-A balance	-2.9	--	--	15.3	--	--
SAR	5.2	--	--	3.1	--	--

Note: All units in mg/l unless noted otherwise.

**pH units

***micromhos/cm

Table 2. NDEP 1999 Analytical Results

Sample I.D. Date of Collection Units	WSW-008 11/16/99 mg/L			WSW-009 11/16/99 mg/L			WSW-010 11/16/99 mg/L			WSW-011 11/16/99 mg/L		
Analyte	Result	Q	Com									
Aluminum (200.7)	0.2	U		0.2	U		0.2			26		
Antimony (200.8)	0.005	U		0.005	U		0.005	U		0.005	U	J D
Arsenic (200.8)	0.02			0.01	J	A	0.01	J	A	0.1		
Barium (200.8)	0.077			0.066			0.071			1.1	J	C
Beryllium (200.2)	0.005	U										
Boron (200.7)	1			0.5			0.6			1.1		
Cadmium (200.8)	0.005	U		0.005	U		0.005	U		0.004	J	A
Calcium (200.7)	75			48			56			200		
Chromium (200.7)	0.01	U		0.01	U		0.01	U		0.02		
Cobalt (200.8)	0.005	U		0.005	U		0.005	U		0.043		
Copper (200.8)	0.005			0.003	J	A	0.005			.017		
Iron (200.7)	0.3			0.2			0.3			30		
Lead (200.8)	0.005	U		0.005	U		0.005	U		0.018		
Magnesium (200.7)	18			11			13			27		
Manganese (200.8)	0.4			0.23			0.14			2.7		
Mercury (245.1)	0.0002	U		0.0002	U		0.0002	U		0.0001	J	A
Molybdenum (200.8)	0.018			0.011			0.014			0.011		
Nickel (200.7)	0.05	U		0.05	U		0.05	U		0.03	J	A
Potassium (200.7)	4	J	A	4	J	A	5			20		
Selenium (200.9)	0.01	U		0.05	U	B	0.01	U		0.05	U	B
Silver (200.8)	0.005	U										
Sodium (200.7)	120			60			77			190		
Thallium (200.7)	0.005	U										
Vanadium (200/7)	0.02	U		0.02	U		0.02	U		0.19		
Zinc (200.8)	0.02	U		0.02	U		0.02	U		0.35		

Com - Comments refer to the corresponding section in the report narrative for each letter.

N/A - Not Applicable.

N/R - No Required.

Q - Refer to data qualifiers.

U- The parameter was analyzed for, but was not detected; the associated value is the sample detection limit, adjusted for dilution, if any.

J - The associated value is an estimated quantity.

Table 3. Soil Analytical Data - Elements, Wabuska Drain, Yerington Mine Site, February 19, 2003

	Site 1 Depth	Site 1 0 - 6 in	Site 1 12 in	Site 1 24 in	Site 2 0 - 6 in	Site 3 0 - 6 in	Site 3 12 in	Site 3 24 in	Site 4 0 - 6 in	Site 5 0 - 6 in	Site 6 0 - 6 in	Site 7 0 - 6 in	Site 7 12 in	Site 7 24 in	Site 8 0 - 6 in
Aluminum	13000	6500	3600	19000	9100	10000	9400	4700	7900	9500	7100	5200	3900	11000	
Antimony	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Arsenic	16	10	12	21	9	15	12	4	7	5	5	5	4	4	4
Barium	88	35	35	120	70	110	130	54	78	83	57	140	39	82	
Beryllium	0.7	<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	<25	<25	<20	78	<25	<20	<20	<20	<25	<25	<20	<20	<20	<20	<25
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium	4800	2600	2000	18000	7300	5500	7500	3400	3700	6200	2800	2300	2600	4200	
Chromium	8	4	2	11	7	7	7	5	6	6	7	4	3	7	
Cobalt	7	4	2	9	5	8	8	3	5	4	4	5	3	5	
Copper	310	38	39	270	50	51	24	29	20	22	15	13	10	23	
Iron	20000	14000	9200	38,000	16000	19000	16000	9100	16000	18000	13000	13000	10000	16000	
Lead	7	3	3	9	5	6	6	4	4	5	4	4	3	5	
Magnesium	6100	3000	1700	9100	4600	5700	4800	2500	3300	5300	2900	2700	1800	4600	
Manganese	330	120	70	530	250	270	320	140	320	380	190	340	130	210	
Mercury	0.05	<0.05	<0.05	0.06	<0.05	<0.05	0.05	<0.05	0.06	0.06	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum	2	<1	<1	5	<1	<1	<1	<1	1	2	<1	<1	<1	<1	<1
Nickel	10	7	3	12	7	8	7	4	6	6	6	5	3	6	
Potassium	3100	1500	500	5200	2500	2500	2200	1200	1800	2600	1900	1000	700	2700	
Selenium	0.6	<0.1	<0.1	0.7	0.3	0.2	0.2	0.2	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Silver	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sodium	500	100	100	3900	<400	420	400	<400	<400	700	<400	<100	<100	<400	
Thallium	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium	35	20	18	41	33	36	32	19	26	24	26	21	16	28	
Zinc	77	28	24	63	47	42	36	49	39	43	35	27	21	41	

Note: All concentrations in mg/kg

Bold-face value exceeds background concentration reported by shacklette and Boerngen (1984) or Rose (1979)

Table 4. Surface Water Analytical Data - Total and Dissolved Elements
Wabuska Drain, Yerington Mine Site, February 19, 2003

	Site 6 Total	Site 6 Dissolved	Site 7 Total	Site 7 Dissolved	Site 8 Total	Site 8 Dissolved
Aluminum	0.05	<0.05	0.10	<0.05	0.08	<0.05
Antimony	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.01	0.01	0.01	0.01	0.009	0.01
Barium	0.045	0.042	0.044	0.041	0.04	0.039
Beryllium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	0.38	0.37	0.37	0.38	0.34	0.35
Cadmium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium	34	35	35	35	34	35
Chloride	20	(a)	20	(a)	20	(a)
Chromium	<0.001	0.001	<0.001	0.002	<0.001	0.002
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.003	0.002	0.002	0.001	0.004	0.003
Fluoride	0.61	(a)	0.62	(a)	0.64	(a)
Iron	0.20	<0.05	0.22	<0.05	0.17	<0.05
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	8.4	8.7	8.6	8.7	8.4	8.5
Manganese	0.008	0.001	0.008	0.001	0.004	0.002
Mercury	0.0011	0.0012	0.0014	0.0009	0.0012	0.0008
Molybdenum	0.009	0.008	0.009	0.008	0.01	0.009
Nickel	0.001	<0.001	0.001	<0.001	0.001	<0.001
Potassium	4	4	5	4	5	5
Selenium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sodium	43	44	44	44	43	44
Thallium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Vanadium	0.003	0.003	0.003	0.003	0.004	0.004
Zinc	0.019	0.006	<0.015	0.008	0.017	0.009

Note: All concentrations in mg/L

(a) Analysis for total concentration only.

Table 5. Surface Water Analytical Data - Non-Elemental
Wabuska Drain, Yerington Mine Site, February 19, 2003

	Site 6	Site 7	Site 8
Total Alkalinity (mg/L CaCO ₃)	139	139	140
Bicarbon Alkalinity (mg/L CaCO ₃)	121	133	140
Carbonate Alkalinity (mg/L CaCO ₃)	18	6	<1
Hydroxide Alkalinity (mg/L CaCO ₃)	<1	<1	<1
Hardness (mg/L CaCO ₃)	119	123	119
Nitrate (mg/L N)	<0.05	<0.05	<0.05
pH (S.U.)	8.43	8.33	8.04
Temp (°C) (deg C)	18.7	18.6	18.6
Sulfate (mg/L)	53	54	57
TSS (mg/L)	<5	<5	<5
TDS (mg/L)	270	270	270
Turbidity (NTU)	4.6	3.0	3.2

Table 6. Surface Water Analyte List

Parameter	Phase	Method	Detection Limit	Units
Cations – Anions and General Parameters				
Alkalinity Total	Total	SM 2320 B	1.0	mg/l (as CaCO ₃)
Alkalinity/Bicarbonate	Total	SM 2320 B	1.0	mg/l (as CaCO ₃)
Alkalinity/Carbonate	Total	SM 2320 B	1.0	mg/l (as CaCO ₃)
Alkalinity/Hydroxide	Total	SM 2320 B	1.0	mg/l (as CaCO ₃)
Aluminum – ICP-OES	Total & Dissolved	EPA 200.7	0.05	mg/l
Antimony – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Arsenic – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Barium – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Beryllium – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Boron – ICP-OES	Total & Dissolved	EPA 200.7	0.05	mg/l
Cadmium – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Calcium – ICP-OES	Total & Dissolved	EPA 200.7	0.1	mg/l
Chloride – Ion Chromatography	Total	EPA 300.0	0.5	mg/l
Chromium – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Cobalt – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Copper – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Fluoride - Ion Chromatography	Total	EPA 300.0	0.1	mg/l
Hardness, as CaCO ₃	Total	SM 2340 C	0.1	mg/l (as CaCO ₃)
Iron – ICP-OES	Total & Dissolved	EPA 200.7	0.05	mg/l
Lead – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Magnesium – ICP-OES	Total & Dissolved	EPA 200.7	0.1	mg/l
Manganese – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Mercury – AA Cold Vapor	Total & Dissolved	EPA 245.1	0.0002	mg/l
Molybdenum -ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Nickel – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Nitrate – N- Ion Chromatography	Total	EPA 300.0	0.05	mg/l N
pH	Total	SM 4500 H+B	1	pH Units
pH - Temperature	Total	SM 4500 H+B	--	°C
Potassium – ICP-OES	Total & Dissolved	EPA 200.7	0.5	mg/l
Selenium – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Silver – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Sodium – ICP-OES	Total & Dissolved	EPA 200.7	0.1	mg/l
Sulfate – Ion Chromatography	Total	EPA 300.0	0.2	mg/l
Suspended Solids	Total	SM 2540 D	5	mg/l
Thallium – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Total Dissolved Solids	Dissolved	SM 2540 C	10	mg/l
Turbidity	Total	SM 2130 B	0.1	NTU
Vanadium – ICP-MS	Total & Dissolved	EPA 200.8	0.001	mg/l
Zinc – ICP-MS	Total & Dissolved	EPA 200.8	0.005	mg/l

Table 5. Soil/Sediment Analyte List

Parameter	Phase	Method	Detection Limit	Units
Cations - Anions and General Parameters				
Aluminum – ICP-OES	Soil/Whole Rock	SW – 846 6010B	0.05	mg/Kg
Antimony – ICP- MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Arsenic – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Barium – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Beryllium – ICP-MS	Soil/Whole Rock	SW – 846 6020	0.5	mg/Kg
Boron – ICP-OES	Soil/Whole Rock	SW – 846 6010B	0.05	mg/Kg
Cadmium – ICP-MS	Soil/Whole Rock	SW – 846 6020	0.5	mg/Kg
Calcium – ICP-OES	Soil/Whole Rock	SW – 846 6010B	0.1	mg/Kg
Chromium – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Cobalt – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Copper – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Iron – ICP-OES	Soil/Whole Rock	SW – 846 6010B	0.05	mg/Kg
Lead – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Magnesium – ICP-OES	Soil/Whole Rock	SW – 846 6010B	0.1	mg/Kg
Manganese – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Mercury – AA Cold Vapor	Soil/Whole Rock	SW – 846 7471	0.05	mg/Kg
Molybdenum ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Nickel – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Potassium – ICP-OES	Soil/Whole Rock	SW – 846 6010B	0.5	mg/Kg
Selenium – ICP-MS	Soil/Whole Rock	SW – 846 6020	0.1	mg/Kg
Silver – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Sodium – ICP-OES	Soil/Whole Rock	SW – 846 6010B	0.1	mg/Kg
Thallium – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Total Recoverable Metals – Acid Digestion	Soil/Whole Rock	SW – 846 3050A	--	--
Vanadium – ICP-MS	Soil/Whole Rock	SW – 846 6020	1	mg/Kg
Zinc – ICP-MS	Soil/Whole Rock	SW – 846 6020	10	mg/Kg